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BULLETIN No. 113

THE SHRINKAGE OF EAR CORN IN CRIBS

BY ALBERT N. HUME AND O. D. CENTER



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SUMMARY OF BULLETIN No. 113

1. The total shrinkage of ear corn in cribs varies widely under different conditions, so that an attempt to make a statement in *average* terms would be misleading. Page 363.
2. In the trials reported in this bulletin the shrinkage ranged from 12 percent to 20 percent for the first year. Page 363.
3. The increases in price necessary to compensate for shrinkage vary correspondingly to decrease in weight. Page 364
4. The shrinkage of old corn is very slight compared to shrinkage for the first year. Page 365.
5. April and May are the months of greatest shrinkage. Page 365.

THE SHRINKAGE OF EAR CORN IN CRIBS

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As an average for ten years past, the Chicago cash price for corn has been 3.8 cents per bushel higher in May than in December. It should be further kept in mind that in many localities the custom remains of taking seventy-five pounds of ear corn for a bushel in the fall, and only seventy pounds in the spring. This would be equivalent, if the custom were universally followed, to making an increase of .25 cents per bushel in the price of corn between fall and spring. Some such amount as this should be added to 3.8 cents, in order to express the actual average rise in price of corn between December and May. This would make a total difference of 6.3 cents.

This conclusion is based upon the following data, summarized from the Year Book of the Department of Agriculture for 1905. The prices given in the table for the months of December and May are the averages of the "high" and "low" Chicago cash prices for the respective months.

TABLE 1.—AVERAGE CHICAGO PRICES OF CORN FOR DECEMBER AND MAY

Year.	December price.	May price.	Difference in favor of May.
1895	25.87	28.50	2.63
1896	23.12	24.25	6.13
1897	26.25	34.68	2.43
1898	35.56	33.43	-2.13
1899	30.75	38.25	7.50
1900	37.87	50.56	12.69
1901	65.00	61.93	-4.07
1902	50.50	45.00	-5.50
1903	42.37	48.62	6.25
1904	46.25	56.25	10.00
1905	46.12	.....	.....
Average	38.26	42.03	3.77

One question of interest to nearly every one who handles ear corn is whether or not the average margin of 3.8 cents between December and May (or 6.3 cents, if five pounds less ear corn is taken for a bushel) will justify the holding of corn in cribs from husking time till winter or spring. *Would it be more profitable to market corn as early as possible after husking time, or is it profitable to hold it?*

PLAN OF EXPERIMENT

With a view to getting information on this question the Agricultural Experiment Station of the University of Illinois constructed corn cribs in such a manner that they could be lowered to rest upon the platforms of large wagon scales and weighed. Thus when the cribs were filled with corn the amount of weight lost could be determined from time to time. Each crib was so covered with a roof and siding that it was influenced by weather conditions as little as practicable.

One crib was built on the University farm at Urbana; the other at Sibley, Illinois. It was planned that each crib should be weighed every week, and with few exceptions this was actually done, and the weights recorded. Aside from some preliminary experiments the cribs have been weighed continuously for three successive years, having been refilled once. In every case a variety of corn was used which was well adapted to the locality of the crib. Also in every case the corn used was reasonably mature and sound.*

The weekly weights of the two cribs are given in Tables 6, 8, 10, and 12, of this bulletin. These same data are condensed in Tables 7, 9, 11, and 13, where may be found the shrinkage for the separate months. In these latter tables the average of all the weights taken in a given month is considered as the weight for that month.

In order to make a check upon the data of the "scale crib" at Sibley, a stationary crib was built close by the former. This second crib was constructed of ordinary fencing lumber on blocks. The plan was to weigh each wagon load of corn as it was put in when this crib was filled, and also to weigh out all corn when the crib was emptied at the end of the trial. From the total weights thus gotten the total percent of shrinkage was computed.

SHRINKAGE BY QUARTERS

Table 2 summarizes the shrinkage by quarters; the data being abstracted from Tables 6, 8, 10, and 12. The data for the first year of each trial are given in the upper part of the table and that for the second year trials are given in the lower part of the table.

*It should be stated that this experiment was planned before the writers came into the work of the Illinois Experiment Station, and that it has been continued to date without any essential change. Some modifications have been made recently which will give additional information to be reported later.

TABLE 2.—PERCENT OF SHRINKAGE BY QUARTERS, ORIGINAL WEIGHT OF CORN USED AS THE BASE, THE AVERAGE OF ALL WEIGHTS TAKEN IN THE GIVEN MONTH BEING SUBTRACTED IN CALCULATING SHRINKAGE

Total Shrinkage up to and including month given.				
Crib.	Data for first year.			
	December.	March.	June.	September.
Sibley				
1st trial		5.2	17.7	19.0
2nd trial	2.1	2.2	8.0	12.3
Urbana				
1st trial	3.2	6.9	17.9	19.8
2nd trial	5.5	8.5	14.2	15.2
Data for second year (including first year.)				
Sibley				
1st trial	19.6	17.6	19.1	20.5
Urbana				
1st trial	19.7	18.4	20.3	20.7

From the above table we can see that the first year shrinkages of the two cribs varied between 12.3 percent and 19.8 percent up to the end of the fourth quarter.

In connection with these percents of shrinkage we may consider data secured from other weighings, and also results from some preliminary trials.

December 6, 1901, 20,545 pounds of corn were weighed into a crib at Sibley. This corn was weighed out September 25, 1903, when the weight was found to be 18,690 pounds. Here was a loss of 1,855 pounds or 9.0 percent for the entire period, extending over twenty-two months.

Another crib close by was also filled and emptied on the same dates as the above. The same amount of corn was put into it as into the other, namely 20,545 pounds. When this was taken out it weighed 18,650 pounds. It had lost 1,895 pounds, or 9.2 percent. This crib and the one above were filled with the same kind of corn and the percents of shrinkage thus determined in duplicate certainly agree very well.

Again, a stationary crib was filled with ear corn during the week preceding November 11, 1905, and emptied November 3, 1906. The weights in and out were, respectively, 19,850 pounds and 17,280 pounds. Thus the loss was 12.9 percent for the year, which agrees well with the shrinkage for the Sibley scale crib given in Table 2.

We have thus, taking into consideration all the trials, a variation in shrinkage of the different cribs ranging between 9.0 and 20.7 percent for nearly two years' storage.

Table 2 is used as a basis for computing Table 3, which shows the increase in price that must take place between cribbing time and the given months, to compensate for shrinkage. It is assumed that in the case of every trial, the corn might have been marketed at cribbing time for thirty-five cents per bushel.

TABLE 3.—NUMBER OF CENTS INCREASE IN PRICE PER BUSHEL NECESSARY TO COMPENSATE FOR SHRINKAGE, UP TO AND INCLUDING MONTH GIVEN; ASSUMING CORN TO BE WORTH THIRTY-FIVE CENTS AT CRIBBING TIME

Data for first year.					
Crib.	December.	March.	June.	September.	Difference between December and June.
Sibley					
1st trial		1.9	8.7	8.2	7.8*
2nd trial	.7	.8	3.0	4.9	2.3
Urbana					
1st trial	1.1	2.6	7.6	8.6	6.5
2nd trial	2.0	3.2	5.8	6.3	3.8
Data for second year (including first year.)					
Sibley					
1st trial	8.5	7.5	8.3	9.0	.5
Urbana					
1st trial	8.6	7.9	8.9	9.1	.5

*Difference between March and June.

VARIATION IS GREAT

A consideration of Tables 2 and 3 must cause us to note above other things, the wide variation in the amount of shrinkage of corn in cribs and the consequent variation in the increase of price necessary to compensate for the shrinkage. Obviously there would be no advantage in attempting to compute an average shrinkage from the amount of data at hand. Table 2 shows that the percent of decrease in weight of ear corn up to and including September of the first year runs from 12 percent to nearly 20 percent in the four different trials. Consequently Table 3 shows a necessary increase in price for September varying between 4.9 cents and 8.6 cents per bushel.

The decrease in weight between December and June in two cases out of four was greater than would be covered by the average increase in price of 6.3 cents between December and May; on the other hand two of the trials show a smaller shrinkage so that the average increase in price (including the usual five-pound decrease in the number of pounds taken for one bushel) may cover the average shrinkage.

MONTHS OF GREATEST SHRINKAGE

Table 2 shows that the shrinkage for the second quarter is not much in excess of that for the first quarter; the difference being an average of only 2.10 percent. The shrinkage for the third quarter, however, is noticeably greater than that of the second, the average difference being 8.70 percent. Again the shrinkage from June to September averages only 2.10 percent. *By far the most noticeable shrinkage of ear corn in cribs occurs during the months of April and May.* This conclusion is further apparent from a study of Tables 7, 9, 11, and 13, which give the shrinkages by months. After April and May corn suffers only a gradual loss.

SHRINKAGE OF OLD CORN

By consulting Table 2 and observing the shrinkage given for each crib under the heading "Second Year," it becomes apparent that practically all moisture comes out of ear corn during the first year of shrinkage. In the one trial at Sibley, continued through the second year, the shrinkage was 19.6 percent at the beginning of the year and had only increased to 20.5 percent by the following September. The Urbana corn also lost only one percent in weight during the second year. *It seems safe to assume that old corn may be stored in cribs, with very slight loss from shrinkage.*

RESULTS FROM OTHER EXPERIMENT STATIONS

The Iowa experiment station made reports upon shrinkage of corn in cribs in Iowa bulletins 45 and 77. Bulletin 45 gives data for a single crib, a single year. The following table is reconstructed out of the table of "weekly weights" given on page 228 of Iowa bulletin 45, in such a way as to be comparable with Table 2 of this bulletin.

TABLE 4.—SHRINKAGE OF EAR CORN BY QUARTERS, (*Iowa Bulletin 45*). ORIGINAL WEIGHT OF CORN IS USED AS THE BASE, AND THE AVERAGE OF ALL WEIGHTS TAKEN IN THE GIVEN MONTH AS THE WEIGHT FOR THAT MONTH

Crib.	Percent of shrinkage up to and including month given.			
	December.	March.	June.	September.
Iowa.	8.7	10.5	16.2	19.4

The following table is constructed in a similar manner from data given on page 179 of Iowa bulletin 77. It is made by averaging the shrinkage of four varieties there given.

TABLE 5.—SHRINKAGE OF CORN BY QUARTERS (*Iowa Bulletin 77*).
AVERAGE OF FOUR VARIETIES

Crib.	Shrinkage up to date given in original bulletin.		
	December.	March.	June.
Iowa.	8.3	14.1	20.9

The Michigan Experiment Station reports as follows (*Michigan Bulletin 191*):

In the fall of 1896, October 3 and 5, 6 loads of corn amounting to 16,767 pounds were placed in a crib. Most of it was hauled as soon as husked as the weather was damp and rainy. February 13 following the corn was again weighed. It had lost 5,725 lb., a little over 30 percent. This is an extreme case, as the corn was unusually damp when placed in the crib.

"October 21, 1895, 3,310 pounds of ears were hauled from the field in a fairly dry condition on a damp day. The corn was left in the sacks until January 23, when it had lost 359 pounds or nearly 11 percent."

Dr. Manly Miles at Houghton Farm weighed corn from certain plots called "north plots" and "west plots," October, 1881. There was a weight of 55,553 pounds taken from the "north plots" and 48,830 pounds from the "west plots." The corn from both series was weighed again in March. The total shrinkage of ears from the "north plots" was found to be 7.41 percent and from the "west plots" 7.49 percent.

The Rhode Island Experiment Station Report for 1895 gives results with five varieties of corn. Twenty-five pound samples of unshelled corn were hung in a corn crib in November, and allowed to shrink till March. The shrinkage ranged from 7 percent to 22 percent.

Kentucky Bulletin 26 reports results from eight differently fertilized plots. The corn from each plot was spread on the floor to shrink. The first weight was taken November 11 and the piles were weighed again January 24. The shrinkage ranged from 12.3 to 29.5 percent.

Data given on page 15 of Kentucky Bulletin 33 show the shrinkage of nine plots of corn fertilized in different ways, between husking time and February 7 to range from 9 percent to 12 percent.

EXPLANATION OF FOLLOWING TABLES

The remaining part of this bulletin consists essentially of the tabulated weekly weights from which Table 2 is condensed. These details are appended with the thought that they may be used for reference. For instance, it may be interesting to note that as a general thing the crib weights are influenced by the amount of moisture in the atmosphere. This may be noticed by referring to Tables 6, 8, 10, and 12.

For convenience in reference Table 6 is condensed into Table 7. In like manner Table 8 is summarized in Table 9; Table 10 in Table 11; and Table 12 in Table 13. These Tables 7, 9, 11, and 13, give the percent of shrinkage continuously by months throughout each trial for each crib.

SIBLEY CRIB—FIRST TRIAL

TABLE 6.—DATES OF WEIGHING, NET WEIGHT OF CORN, POUNDS OF SHRINKAGE, OR GAIN, STATE OF WEATHER

Date of weighing.	Net weight of corn in pounds on date of weighing.	Pounds of shrinkage since last weighing.	Pounds of gain since last weighing.	State of weather at or near time of weighing.
1903 Oct. 15	20910	.....	.....	
1904 Jan. 7	19740	1170	...	Dry, snow
" 14	19900	...	160	Clear, mild
" 21	19945	...	45	Cloudy, no wind
" 28	19905	40	...	Dry, snow
Feb. 4	19740	165	...	Dry, snow
" 11	19720	20	...	Dry, no wind
" 18	19695	25	...	Damp, no wind
" 25	19595	100	...	Dry, snowing
Mar. 3	19670	...	75	Dry, no wind
" 10	19595	75	...	Damp, S. wind
" 17	19570	25	...	Dry, S. E. wind
" 31	19595	...	25	Damp, no wind
April 7	19520	75	...	Dry, E. wind
" 14	19495	25	...	Dry, N. wind
" 21	18720	775	...	Dry, S. wind
" 28	18595	125	...	Dry, N. wind
May 5	18245	350	...	Light rain
" 12	17870	375	...	Dry, S. wind
" 19	17645	225	...	Dry, no wind
" 26	17370	275	...	Dry, no wind
June 2	17395	...	25	Dry, S. wind
" 9	17245	150	...	Dry, S. wind
" 23	17070	175	...	Dry, S. W. wind
" 30	17020	50	...	Dry, S. W. wind

TABLE 6.—CONTINUED

Date of weighing.	Net weight of corn in pounds on date of weighing.	Pounds of shrinkage since last weighing.	Pounds of gain since last weighing.	State of weather at or near time of weighing.
July 7	17020	0	...	Damp, S. wind
" 14	17195	...	175	Damp, S. wind
" 21	17095	100	...	Dry, not, no wind
" 28	17020	75	...	Dry, cool
Aug. 4	16920	100	...	Dry, hot, W. wind
" 11	16795	125	...	Dry, hot, no wind
" 18	16770	25	...	Dry, warm, N. E. wind
" 25	16795	...	25	Dry, warm, N. W. wind
Sept. 1	16945	...	150	Dry, warm, no wind
" 8	16895	50	...	Dry, no wind
" 15	16845	50	...	Dry, no wind
" 22	16895	...	50	Dry, warm, no wind
" 29	17080	...	185	Dry, hot
Oct. 6	17000	80	...	Dry, cool
" 13	17035	...	35	Damp, cool
" 20	16920	115	...	Damp, cool, S. W. wind
" 27	16960	...	40	Dry, cool, no wind
Nov. 3	16945	15	...	Warm, dry, no wind
" 10	16920	25	...	Dry, cool
" 24	16820	100	...	Dry, no wind
Dec. 1	16820	0	...	Dry, no wind
" 8	16850	...	30	Dry, no wind
" 15	16730	120	...	Dry, no wind
" 22	16780	...	50	Dry, no wind
" 29	16845	...	65	Dry, cool, S. W. wind
1905				
Jan. 5	17120	...	275	Damp, cold, no wind
" 12	16845	275	...	Dry, cold, no wind
" 26	16820	25	...	.....
Feb. 4	16495	325	...	.....
" 17	16795	...	300	.....
" 24	17170	...	375	.....
Mar. 10	17295	...	125	.....
" 17	17295	0	...	.....
" 31	17095	200	...	.....
Apr. 13	16980	115	...	.....
" 27	16950	30	...	.....
May 11	16950	0	...	.....
" 18	16970	...	20	.....
June 1	16920	50	...	.....
" 15	16820	100	...	.....
" 29	16680	140	...	.....
July 6	16745	...	65	.....
" 20	16745	0	...	Dry, hot
" 27	16660	85	...	.....
Aug. 22	16720	...	60	.....
Sept. 15	16690	30	...	East wind
" 28	16520	170	...	Light wind, S. E.
Oct. 5	16520	0	...	S. W. wind
" 12	16460	60	...	N. W. wind

SIBLEY CRIB—FIRST TRIAL.

TABLE 7.—PERCENTAGES OF LOSS FOR MONTH ON THE ORIGINAL WEIGHT OF THE CORN, AND ALSO PERCENTAGES OF LOSS EACH MONTH SINCE THE PRECEDING MONTH, USING THE ORIGINAL WEIGHT OF THE CRIB AS THE BASE AND THE AVERAGE OF ALL WEIGHTS TAKEN AS THE WEIGHT FOR THE MONTH.

Date.	Percent of shrinkage to date.	Percent of original weight lost since preceding month.	Percent of original weight gained since preceding month.
1904			
January	4.9	....	....
February	5.8	.9	....
March	5.2	....	.6
April	8.7	3.5	....
May	14.9	6.2	....
June	17.7	2.8	....
July	18.3	.6	....
August	19.5	1.2	....
September	19.0	....	.5
October	18.8	....	.2
November	19.2	.4	....
December	19.6	.4	....
1905			
January	19.0	....	.6
February	19.5	.5	....
March	17.6	....	1.9
April	18.8	1.2	....
May	18.8	.0	....
June	19.1	.3	....
July	20.0	.9	....
August	20.0	.0	....
September	20.5	.5	....
October	21.1	.6	....

SIBLEY CRIB—SECOND TRIAL.

TABLE 8.—DATES THE WEIGHTS WERE TAKEN, NET WEIGHT OF THE CORN, LOSS OF WEIGHT SINCE LAST WEIGHING, AND STATE OF WEATHER WHEN RECORD WAS TAKEN.

Date of weighing	Net weight of corn in pounds at time of weighing.	Pounds of shrinkage since last weighing.	Pounds of gain since last weighing.	State of weather at or near time of weighing.
1905				
Nov. 11	19810	...	..	.....
Dec. 8	19400	410	...	.....
" 20	19350	50	...	.....
" 30	19375	...	25	.....
1906				
Jan. 4	19375	0	...	.....
" 7	19250	125	...	.....
" 17	19375	...	125	.....
" 26	19325	50	...	.....
Feb. 1	19200	125	...	.....
" 14	19025	175	...	.....
" 22	19375	...	350	.....
Mar. 1	19355	20	...	.....
" 8	19300	55	...	Damp, cloudy
" 15	19425	...	125	Snow, N. E. wind
" 29	19375	50	...	Damp, cloudy
Apr. 7	19300	75	...	Warm S. E. wind
" 12	19285	15	...	.....
" 26	18975	310	...	.....
May 3	18800	175	...	.....
" 10	18500	300	...	.....
" 17	18200	300	..	.....
" 25	18275	...	75	.....
June 2	18200	75	...	.....
" 7	18225	...	25	.....
" 16	18250	...	25	.....
" 21	18275	...	25	.....
" 30	18095	180	...	.....
July 7	18000	95	...	.....
" 19	17775	225	...	.....
" 28	17850	...	75	.....
Aug. 30	17175	675	...	.....
Sept. 6	17175	0	...	.....
" 14	17500	...	325	.....
" 20	17425	75	...	.....
Oct. 4	17775	...	350	.....

SIBLEY CRIB—SECOND TRIAL

TABLE 9.—PERCENTAGES OF LOSS FOR MONTH BASED ON THE ORIGINAL WEIGHT OF THE CORN, AND ALSO PERCENTAGES OF LOSS EACH MONTH, SINCE THE PRECEDING MONTH, USING THE ORIGINAL WEIGHT OF THE CORN AS THE BASE, AND THE AVERAGE OF ALL WEIGHTS TAKEN IN THE MONTH AS THE WEIGHT FOR THE MONTH.

Date.	Percent of shrinkage to date.	Percent of original weight lost since preceding month.	Percent of original weight gained since preceding month.
1905			
November	...	...	...
December	2.1	...	...
1906			
January	2.4	.3	...
February	3.0	.6	...
March	2.2	...	.8
April	3.1	.9	...
May	6.9	3.8	...
June	8.0	1.1	...
July	10.6	2.6	...
August	13.3	2.7	...
September	12.3	...	1.0
October	10.2	...	2.1

URBANA CRIB—FIRST TRIAL

TABLE 10.—DATES OF WEIGHING, NET WEIGHT OF CORN, POUNDS OF SHRINKAGE, OR GAIN, AND STATE OF WEATHER AT TIME OF WEIGHING.

Date of weighing.	Net weight of corn in pounds at time of weighing.	Pounds of shrinkage since last weighing.	Pounds of gain since last weighing.	State of weather at or near time of weighing.
1903				
Nov. 20	19840	....	...	No rain for 4 days
" 27	19500	340	...	Clear, no rain, cold
Dec. 3	19395	105	...	Clear, dry
" 10	19205	190	...	Snow
" 19	19225	....	20	Rain 6 hrs.
" 24	19155	70	...	Rain 12 hrs.
" 31	18995	160	...	Clear, cold
1904				
Jan. 7	18970	25	...	Snow, clear, cold
" 14	18895	75	...	Snow for 3 days
" 21	18975	....	80	Rain, warm
" 28	18945	30	...	Snow, clear, cold
Feb. 4	18855	90	...	Cold, dry
" 11	18770	85	...	Cold, dry
" 18	18655	115	...	Cold, snow
" 25	18600	55	...	Snowing, cold, dry
Mar. 3	18670	....	70	Clear
" 10	18520	150	...	Showers
" 17	18480	40	...	Raining
" 24	18365	115	...	Rained 2 days
" 31	18260	105	...	Warm. 12 hrs. rain

TABLE 10.—CONTINUED

Date of weighing.	Net weight of corn in pounds at time of weighing.	Pounds of shrinkage since last weighing.	Pounds of gain since last weighing.	State of weather at or near time of weighing.
Apr. 7	17935	325	...	Dry, clear
" 14	17745	190	...	Dry, clear
" 21	17480	265	...	Dry, cool
" 28	17355	125	...	Rain for 36 hrs
May 5	17035	320	...	Dry, warm
" 12	16820	215	...	Rain, dry now
" 19	16720	100	...	Dry
" 26	16505	215	...	Showers today
June 2	16525	....	20	Dry, clear
" 9	16365	160	...	Dry, warm
" 16	16260	105	...	Shower, clear now
" 23	16110	150	...	Dry
" 30	16125	....	15	Dry
July 7	16150	....	25	Damp today
" 14	16135	15	...	Shower today
" 21	16000	135	...	Dry
" 28	15920	80	...	Slight rain
Aug. 4	15805	115	...	Clear, dry
" 11	15785	20	...	Slight shower
" 18	15720	65	...	Clear, dry
" 25	15895	....	175	Light shower
" 31	15885	10	...	Heavy shower
Sept. 8	15840	45	...	Dry, clear
" 15	15830	10	...	Light shower
" 22	15895	....	65	Heavy rain
" 29	16065	....	170	Very heavy rain
Oct. 6	15930	135	...	Rain
" 13	15975	35	45	Heavy rain
" 20	15865	110	...	Clear, dry
" 27	15830	35	...	Clear, dry
Nov. 3	15845	....	15	Foggy mornings
" 10	15935	....	90	Very slight sprinkle
" 17	15845	90	...	Dry
" 25	15915	....	70	Dry
Dec. 1	15795	120	...	Dry
" 8	15830	....	35	Dry
" 15	15865	....	35	Moist
" 22	15990	....	25	Damp
" 29	16090	....	100	Wet
1905				
Jan. 5	16015	75	...	Moist
" 12	16260	....	245	Wet
" 19	16180	80	...	Heavy rain
" 26	16150	30	...	Dry, snow
Feb. 2	16125	25	...	Dry, cold
" 9	16150	....	25	Moist, snowing
" 16	16160	....	10	Dry, 6 inches snow
" 23	16230	....	70	Moist, thawing
Mar. 2	16260	....	30	Moist, thawing
" 9	16275	....	15	Wet, rain and snow
" 16	16225	50	...	Drying
" 23	16165	60	...	Dry
" 30	16020	145	...	Moist, slight shower

TABLE 10.—CONTINUED

Date of weighing.	Net weight of corn in pounds at time of weighing.	Pounds of shrinkage since last weighing.	Pounds of gain since last weighing.	State of weather at or near time of weighing.
Apr. 6	15925	95	...	Dry
" 13	15975	....	50	Clear, dry
" 20	15895	80	...	Heavy shower
" 27	15985	....	90	Wet, 2 inches rain
May 4	15960	25	...	No rain since April 27
" 11	16030	....	70	Showers
" 18	15965	65	...	Showery
" 25	15945	20	...	Dry and clear
June 1	15890	55	...	Heavy rain
" 8	15785	105	...	Slight shower
" 15	15830	....	45	Dry
" 22	15800	30	...	Dry
" 29	15725	75	...	Dry
July 6	15835	....	110	Rain since July 1
" 13	15890	....	55	Rain for 13 days
" 20	15835	55	...	Heavy shower
" 27	15755	80	...	Dry
Aug. 3	15800	....	45	Slight shower
" 10	15720	80	...	Very dry
" 17	15820	....	100	Heavy rain
" 24	15770	50	...	Clear and dry
" 31	15705	65	...	Clear, dry, warm
Sept. 7	15690	15	...	Clear, dry, warm
" 14	15815	....	125	Rain previous to wt.
" 21	15765	50	...	Clear, dry, warm
" 28	15630	135	...	No rain for 2 wks.
Oct. 5	15650	....	20	Rain previous to wt.
" 12	15590	60	...	Dry, clear, warm
" 19	15740	....	150	Heavy rain

URBANA CRIB—FIRST TRIAL.

TABLE 11.—PERCENTAGES OF LOSS FOR MONTH BASED ON THE ORIGINAL WEIGHT OF THE CORN, AND ALSO PERCENTAGES OF LOSS EACH MONTH, SINCE THE PRECEDING MONTH, USING THE ORIGINAL WEIGHT OF THE CORN AS THE BASE, AND THE AVERAGE OF ALL WEIGHTS TAKEN, AS THE WEIGHT FOR THE MONTH

Date.	Percent of shrinkage to date.	Percent of original weight lost since preceding month.	Percent of original weight gained since preceding month.
1903			
November	.8	...	...
December	3.2	2.4	...
1904			
January	4.5	1.3	...
February	5.6	1.1	...
March	6.9	1.3	...

TABLE 11.—CONTINUED.

Date.	Percent of shrinkage to date.	Percent of original weight lost since preceding month.	Percent of original weight gained since preceding month.
April	11.1	4.2	...
May	15.4	4.3	...
June	17.9	2.5	...
July	19.0	1.1	...
August	20.2	1.2	...
September	19.8	...	.4
October	19.8	.0	...
November	19.9	.1	...
December	19.7	...	.2
1905			
January	18.5	...	1.2
February	18.5	.0	...
March	18.4	...	.1
April	19.6	1.2	...
May	20.7	1.1	...
June	20.3	...	.4
July	20.2	...	.1
August	20.5	.3	...
September	20.7	.2	...
October	21.0	.3	...

URBANA CRIB—SECOND TRIAL.

TABLE 12.—SHOWING THE DATES WHEN THE CRIB WAS WEIGHED, THE NET WEIGHT OF THE CORN, AND POUNDS OF LOSS, OR GAIN, SINCE LAST WEIGHING

Date of Weighing.	Net weight of corn in pounds at time of weighing.	Pounds of shrinkage since last weighing	Pounds of gain since last weighing.	State of weather at or near time of weighing.
1905				
Nov. 2	23145	....	....	.....
" 9	22935	210	....	Clear
" 16	22555	380	....	Small shower
" 23	22225	330	....	.....
" 30	21955	270	....	.....
Dec. 7	21945	10	....	.....
" 14	21760	185	....	Clear and warm
" 21	21995	....	235	.....
" 28	21700	295	....	.....

TABLE 12.—CONTINUED

Date of weighing.	Net weight of corn in pounds at time of weighing.	Pounds of shrinkage since last weighing.	Pounds of gain since last weighing.	State of weather at or near time of weighing.
1906				
Jan. 4	21645	55	....	.....
" 11	21505	140	....	Cloudy
" 18	21560	....	55	Small showers
" 25	21570	....	10	Heavy rainfall
Feb. 1	20680	....	110	Clear
" 8	21270	....	590	Clear, cold
" 15	21340	....	70	Clear
" 22	21320	20	....	Clear
Mar. 1	21275	45	....	Clear
" 8	21305	....	30	Damp
" 15	21265	40	....	12 in. snow, melting
" 22	20670	595	....	Heavy snow
" 29	21295	....	625	Heavy rain
Apr. 5	21095	200	....	Raining
" 12	21035	60	....	Clear, rain previous
" 19	20710	325	....	Clear
" 26	20465	245	....	Shower previous
May 3	20340	125	....	Clear, rain previous
" 10	20170	170	....	Clear, shower previous
" 17	19890	280	....	Dry
" 24	19685	205	....	Heavy rain previous
" 31	19875	....	190	Heavy rain
June 7	19870	5	....	Shower previous
" 14	19880	....	10	Raining
" 21	19870	10	....	Clear, rain previous
" 28	19785	85	....	Hot, dry
July 5	19700	85	....	Dry
" 12	19590	110	....	Clear, warm
" 19	19595	....	5	Dry
" 26	19480	115	....	Clear, dry
Aug. 2	19405	75	....	Clear, dry
" 9	19735	....	330	Showers
" 16	19620	115	....	Clear, dry
" 23	19785	....	115	Clear, warm
" 30	19700	35	....	Rain previous to wt.
Sept. 6	19600	100	....	Clear, dry
" 11	19655	....	55	Clear, dry
" 13	19635	20	....	Shower previous
" 20	19600	35	....	Clear, dry
" 27	19555	45	....	Shower previous
Oct. 4	19735	....	180	Shower previous
" 11	19655	80	....	Clear and dry
" 18	19560	95	....	Rain 2 days previous
" 25	19625	....	65	Heavy rain
" 31	19640	....	15	Clear and dry

URBANA CRIB—SECOND TRIAL.

TABLE 13.—PERCENTAGES OF LOSS FOR MONTH BASED ON THE ORIGINAL WEIGHT OF THE CORN, AND ALSO PERCENTAGES OF LOSS EACH MONTH SINCE THE PRECEDING MONTH, USING THE ORIGINAL WEIGHT OF THE CORN AS THE BASE, AND THE AVERAGE OF ALL WEIGHTS TAKEN AS THE WEIGHT FOR THE MONTH.

Date.	Percent of shrinkage to date.	Percent of original weight lost since preceding month.	Percent of original weight gained since preceding month.
1905			
November	2.5	...	...
December	5.5	3.0	...
1906			
January	6.7	1.2	...
February	8.6	1.9	...
March	8.5	...	.1
April	10.0	1.5	...
May	13.6	3.6	...
June	14.2	.6	...
July	15.3	1.1	...
August	15.1	...	.2
September	15.2	.1	...

